



## BRANZ Appraised

Appraisal No. 1245 [2023]

## FLEXITRAY 102 WET AREA MEMBRANE



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### BRANZ Appraisals

Technical Assessments of products for building and construction.



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## Product

- 1.1 Flexitray 102 is a liquid-applied waterproofing membrane for use under ceramic or stone tile finishes in internal wet areas.

## Scope

- 2.1 Flexitray 102 has been appraised for use as a waterproofing membrane for internal wet areas of buildings within the following scope:
- on floor substrates of concrete, plywood, fibre cement compressed sheet and fibre cement sheet tile underlay, and on wall substrates of concrete masonry, cement render, wet area fibre cement sheet lining systems and wet area plasterboard lining systems; and,
  - when protected from physical damage by ceramic or stone tile finishes; and,
  - when floors are designed and constructed such that deflections do not exceed 1/360<sup>th</sup> of the span.
- 2.2 The use of Flexitray 102 on concrete slabs where hydrostatic or vapour pressure is present from below is outside the scope of this Appraisal.
- 2.3 Movement and control joints in the substrate must be carried through the membrane and tile finish. The design and construction of the substrate and movement and control joints is specific to each building, and is therefore the responsibility of the building designer and building contractor and is outside the scope of this Appraisal.
- 2.4 The ceramic or stone tile finishes are outside the scope of this Appraisal.
- 2.5 The membrane must be installed by trained installers, approved by The Trustee for B & C Crommelin Family Trust.

## Building Regulations

### National Construction Code (NCC)

- 3.1 In the opinion of BRANZ, Flexitray 102, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NCC:

#### NCC 2022 Volume One - Building Code of Australia

**Part F2 WET AREAS AND OVERFLOW PROTECTION:** Performance F2P1 and F2P2. Flexitray 102 meets these requirements. See Paragraphs 13.1-13.6.

#### NCC 2022 Volume Two - Building Code of Australia

**Part H4 HEALTH AND AMENITY:** Performance H4P1. Flexitray 102 meets this requirement. See Paragraphs 13.1-13.6.

## Technical Specification

- 4.1 Materials supplied by The Trustee for B & C Crommelin Family Trust are as follows:
- **Flexitray 102** is a ready-mixed, waterborne flexible SBR waterproofing membrane for use under ceramic or stone tile finishes in internal wet areas. It is coloured sandstone and is supplied in 15 L plastic pails.

## Handling and Storage

- 5.1 All materials must be stored inside, up off concrete floors, in dry conditions, out of direct sunlight and freezing conditions. The membrane product has a shelf life of 12 months from the date of manufacture in the original unopened packaging. Once opened, the product must be used within 3 months.

## Technical Literature

- 6.1 This Appraisal must be read in conjunction with:
- Flexitray 102 Technical Data Sheet - January 2022.
- 6.2 All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

## Design Information

### General

- 7.1 Flexitray 102 is for use in buildings where an impervious waterproof membrane is required to floors and walls to prevent damage to building elements and adjoining areas.
- 7.2 The membrane must be protected from physical damage by the application of ceramic or stone tile finishes.
- 7.3 Movement and control joints may be required depending on the shape and size of the building or room, and the tile finish specified. Design guidelines can be found in the BRANZ Good Practice Guide: Tiling.
- 7.4 In all cases, framing must be provided so that the maximum span of the substrate as specified by the substrate manufacturer is met and all sheet edges are fully supported. Timber framing systems supporting the substrates must be constructed such that deflections do not exceed 1/360<sup>th</sup> of the span.

### Structure

#### Plywood

- 8.1 Structural plywood must be a minimum of 17 mm thick complying with AS/NZS 2269. LOSP treated plywood must not be used. The structural plywood must be supported with joists at a maximum spacing as detailed in AS 1684.3, Table 3.2. The plywood must be fixed with either 2.8 mm diameter flat head or bullet head hand-driven nails, or 2.5 mm diameter gun-driven nails with a length not less than 2.5 times the thickness of the plywood sheet. The plywood must be fixed at 150 mm centres along the sheet ends and 300 mm centres at intermediate joists and along noggings.

#### Fibre Cement Compressed Sheet / Fibre Cement Sheet Tile Underlay

- 8.2 Fibre cement compressed sheet and tile underlay must be manufactured to comply with the requirements of AS/NZS 2908.2 and must be specified by the manufacturer as being suitable for use as a wet area membrane substrate. Installation must be carried out in accordance with the instructions of the manufacturer.

#### Concrete and Concrete Masonry

- 8.3 Concrete and concrete masonry substrates must be to a specific engineering design meeting the requirements of the NCC.

### **Wet Area Wall Linings**

- 8.4 Plasterboard wall linings must be manufactured to comply with AS/NZS 2588 and be suitable for use in internal wet areas.
- 8.5 Fibre cement sheet must be suitable for use in wet areas and comply with AS/NZS 2908.2.
- 8.6 Installation of plasterboard or fibre cement wall linings must be carried out in accordance with the instructions of the manufacturer.

### **Durability**

#### **Serviceable Life**

- 9.1 Flexitray 102, when subjected to normal conditions of environment and use, is expected to have a serviceable life of at least 15 years and will be compatible with ceramic or stone tile finishes with a design serviceable life of 15-25 years.

### **Maintenance**

- 10.1 No maintenance of the membrane will be required provided significant substrate movement does not occur and the tile finish remains intact. Regular checks must be made of the tiled areas to ensure they are sound and will not allow moisture to penetrate. Any cracks or damage must be repaired immediately by repairing the tiles, grout and sealant.
- 10.2 In the event of damage to the membrane, the tiling must be removed and the membrane repaired by removing the damaged portion and applying a patch as for new work.
- 10.3 Drainage outlets must be maintained to operate effectively, and tile finishes must be kept clean.

### **Outbreak of Fire**

- 11.1 Flexitray 102 must be protected or separated from fireplaces, heating appliances, chimneys and flues in accordance with the requirements of NCC Volume One, Part G2, Performance G2P1, and NCC Volume Two, Part H7, Performance H7P3.

### **Spread of Fire**

- 12.1 Flexitray 102 is considered an exempt building material, in accordance with NCC Volume One Deemed-to-Satisfy Provision C2D11 [3].

### **Internal Moisture**

- 13.1 Flexitray 102 can be used to prevent water from penetrating behind fittings and linings or into concealed spaces and therefore meets NCC Volume One Part F2 Wet areas and overflow protection, Performance F2P1 and F2P2, and NCC Volume Two Part H4 Health and amenity, Performance H4P1.
- 13.2 Floor surfaces must be finished with ceramic or stone tiles.
- 13.3 Design guidance on waterproofing membranes can be obtained from AS 3740, the BRANZ Good Practice Guide: Tiling, and flooring and wallboard manufacturers.
- 13.4 Falls within shower areas must be between 1:60 and 1:80 and other wet areas between 1:80 and 1:100. In unenclosed showers, falls must extend 1,500 mm from the shower rose. Floor wastes and drainage flanges must be provided and must fall to an outlet.
- 13.5 Flexitray 102 must completely cover shower bases and extend 1,500 mm out from the shower rose for unenclosed showers. The membrane must extend a minimum of 150 mm above the shower floor and over any nib. Water resistant wall finishes must flash over the membrane.
- 13.6 BRANZ recommends the entire floor be covered by Flexitray 102 in bath, shower and spa rooms where timber is used.

## Installation Information

### Installation Skill Level Requirement

- 14.1 Installation of the membrane must be completed by trained installers, approved by The Trustee for B & C Crommelin Family Trust.
- 14.2 Installation of substrates must be completed by tradespersons with an understanding of internal wet area construction, in accordance with instructions given within the Technical Literature and this Appraisal.

### Preparation of Substrates

- 15.1 Substrates must be dry, clean and stable before installation commences. Surfaces must be even and free from nibs, sharp edges, dust, dirt or other materials such as oil, grease or concrete formwork release agents.
- 15.2 The relative humidity of concrete substrates must be 75% or less before membrane application. Concrete can be checked for dryness by using a hygrometer as set out in BRANZ Bulletin No. 585.
- 15.3 All voids, cracks, holes, joints and excessively rough areas must be filled to achieve an even and uniform surface. Junctions of substrate abutments, such as at wall/floor and wall/wall junctions must have reinforcements installed as set out in the Technical Literature.
- 15.4 Substrates must be primed with a primer as specified by The Trustee for B & C Crommelin Family Trust and allowed to dry fully before the membrane is installed.

### Membrane Installation

- 16.1 Installation must not be undertaken where the substrate surface temperature is below 5°C or above 35°C.
- 16.2 Flexitray 102 must be applied in a minimum of two coats at the rates set out in the Technical Literature. Subsequent coats must be applied in a different direction to the previous coat.
- 16.3 Membrane application can be completed by roller (medium/long nap) or brush (long bristle).
- 16.4 The installation and use of any reinforcing must comply with the instructions in the Technical Literature.
- 16.5 Clean up may be undertaken with water.

### Tiling

- 17.1 The membrane must be fully cured before tiling. The cured membrane must be protected at all times to prevent mechanical damage, so may require temporary covers until the finishing is completed.
- 17.2 Tiling must be undertaken in accordance with AS 3958.1 and the BRANZ Good Practice Guide: Tiling. The compatibility of the tile adhesive must be confirmed with the adhesive manufacturer or The Trustee for B & C Crommelin Family Trust.

### Inspections

- 18.1 Critical areas of inspection are:
  - Construction of substrates, including crack control and installation of bond breakers and movement control joints.
  - Moisture content of the substrate prior to the application of the membrane.
  - Acceptance of the substrate by the membrane installer prior to application of the membrane.
  - Installation of the membrane to the supplier's instructions, particularly installation to the correct thickness and use of reinforcement.
  - Membrane curing and integrity prior to the installation of tiles including protection from mechanical damage during curing and prior to tile installation.

## Basis of Appraisal

The following is a summary of the technical investigations carried out:

### Tests

- 19.1 The following testing of Flexitray 102 has been undertaken by the following organisations:
- CSIRO, Australia – tensile strength and elongation at break; tensile strength and elongation at break after UV exposure, including immersion in water, bleach and detergent; heat aging; moving joint test and cyclic movement.
- 19.2 Test methods and results have been reviewed by BRANZ and found to be satisfactory.

### Other Investigations

- 20.1 An assessment was made of the durability of Flexitray 102 by BRANZ technical experts.
- 20.2 Site inspections were carried out by BRANZ to examine the practicability of installation.
- 20.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

### Quality

- 21.1 The manufacture of the membrane has been examined by BRANZ, and details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 21.2 The quality of supply to the market is the responsibility of The Trustee for B & C Crommelin Family Trust.
- 21.3 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the framing systems and substrate.
- 21.4 Quality on-site is the responsibility of the trained installers, approved by The Trustee for B & C Crommelin Family Trust.
- 21.5 Building owners are responsible for the maintenance of the ceramic tiles in accordance with the instructions of The Trustee for B & C Crommelin Family Trust.

## Sources of Information

- ANSI 118.10:1999 Load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installations.
- AS 1684.3:2021 Residential timber-framed construction Cyclonic areas.
- AS 3740:2021 Waterproofing of domestic wet areas.
- AS 3958.1:2007 Ceramic Tiles – Guide to the installation of ceramic tiles.
- AS/NZS 2269:2012 Plywood – structural.
- AS/NZS 2588:2018 Gypsum plasterboard.
- AS/NZS 2908.2:2000 Cellulose-cement products – flat sheet.
- AS/NZS 4858:2004 Wet area membranes.
- BRANZ Good Practice Guide: Tiling, April 2015.
- National Construction Code 2022, Australian Building Codes Board.



In the opinion of BRANZ, **Flexitray 102 Wet Area Membrane** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **The Trustee for B & C Crommelin Family Trust**, and is valid until further notice, subject to the Conditions of Appraisal.

### Conditions of Appraisal

1. This Appraisal:
  - a) relates only to the product as described herein;
  - b) must be read, considered and used in full together with the Technical Literature;
  - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
  - d) is copyright of BRANZ.
2. **The Trustee for B & C Crommelin Family Trust:**
  - a) continues to have the product reviewed by BRANZ;
  - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
  - c) abides by the BRANZ Appraisals Services Terms and Conditions;
  - d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
  - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
  - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
  - c) any guarantee or warranty offered by **The Trustee for B & C Crommelin Family Trust**.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to **The Trustee for B & C Crommelin Family Trust** or any third party.

For BRANZ



**Claire Falck**

Acting Chief Executive

Date of Issue:

19 May 2023